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ABSTRACT

This paper reports on the findings of two surveys, one year apart, that examined the experiences and attitudes of teachers in a University of Hong Kong English Centre related to the prospect of a curriculum increasingly mediated through information technology (IT). The responses bear witness to the problems teachers experienced in attempting to computerize their pedagogical practices and show how issues of technology, workload, and support can contribute to levels of anxiety and resistance in the workplace. By the end of the second year, a few teachers remained skeptical that computers can enhance language teaching, but any remaining apprehension regarding IT tended to be focused on real administrative and logistical problems of implementation. The paper concludes with recommendations to institutions seeking to pursue the path of integrating IT into well-established curricular practices. (Contains 10 references.) (Author/MES)

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"Don't Forget the Teachers!": Evaluating the Impact of IT Integration into a University Curriculum"

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Abstract

In this paper, we report on the findings of two surveys, one year apart, into the experiences and attitudes of teachers in a university English-teaching unit to the prospect of a curriculum increasingly mediated through information technology. The responses bear witness to the problems teachers experienced in attempting to computerise their pedagogical practices, and show how issues of technology, workload and support in the end can contribute to levels of anxiety and resistance in the workplace. By the end of the 2nd year, a few teachers remained skeptical that computers can enhance language teaching, but any remaining apprehension regarding IT tended to be focused on real administrative and logistical problems of implementation. The paper concludes with recommendations to institutions seeking to pursue the path of integrating IT into well-established curricular practices.

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Introduction

The thesis of this paper is that, before they start throwing money at computerising their students' learning environment, educational institutions need to create the right pre-conditions –in terms of both technological and pedagogical support and staffing and hardware infrastructure. This paper discusses an initiative at the University of Hong Kong which involved the English Centre being funded to take a lead in integrating information technology (IT) into all of its first-year curricula. The rationale was that the English Centre alone had access to all 3,000 incoming students via its compulsory courses in English for academic and/or professional communication courses. Our own incentive was the opportunity to pursue the educational goals of providing richer, more individualised and more interactive language learning resources for our students. We were also providing a service the university was expressly asking us to provide, a novel situation which contrasted with the climate of under-appreciation we had been experiencing over the past few years.

Over the past two decades, CALL and CMC[1] have become accepted sub-disciplines of language teaching and applied linguistics. Much work has been done on strategies and techniques to harness technology to pedagogy, whether for program delivery or as ancillary resource: cf. Star Roxanne Hiltz' recent book on the Virtual Classroom (1994) and, in CALL/CMC specifically, earlier work by John Higgins (1988), and more recent American work by Mark Warschauer (1995) and Selfe and Hillgoss (1994). However, much of this work assumes an audience of teachers converted to the cause of CALL/CMC; any problems of implementation tend to be constructed as learner problems. Less common have been discussions of the problems of bringing a large body of teachers up to date with IT in institutional settings: problems of familiarisation, workload, training and back-up support resources – and of alienation. Those papers that have cautioned against the uncritical pursuit of computer-base learning and teaching have tended to focus on the students. Deming wrote of Word Processing "apprehension" back in 1987, and more recently (1994) Hiltz has used the term "*electronic anomie*", but neither were identifying a problem that might afflict teachers. At the University of Illinois-Chicago's English Department, Sosnoski et al. (1997) were concerned about the effects of IT on teaching practices and the teacher-student relationship, and launched an investigation into the

[1] CALL = Computer-assisted language learning; CMC = Computer-mediated communication. CMC is now regarded as the more contemporary term, as CALL's notion of "assistance" is seen as too weak a term to describe the pervasive role of computers in modern communication.

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possible implications for writing programs across the curriculum (the Tic-Toc Project [2]). More recently still, Hara and Kling (1999) noted the absence of a social dimension to discussions of students' problems with computer-mediated education, and noted strong threads of frustration, notably at the lack of teacher response. Findings like these point to an underlying problem area equally under-researched: the practical and philosophical difficulties experienced by teachers.

In this paper, we report on the findings of two surveys, one year apart, into the experiences and attitudes of teachers in a university English-teaching unit to the prospect of a curriculum increasingly mediated through information technology. These surveys were conducted as part of a larger project, OACES, whose aim was to provide an environment and support for both teachers and students in the teaching and learning of academic communication skills. Specifically, this paper addresses the problems our teaching unit has experienced in attempting to computerise our pedagogical practices, and how issues of technology, workload and support in the end can contribute to levels of anxiety and resistance in the workplace.

Last year at Hong Kong University (HKU), the University administration decided to opt for a Laptop campus as a means of bringing curricular delivery into the 21st century. There were reference models in the USA – Wake Forest for one – but at HKU practically none of the University's curricular programmes were being delivered over the Internet (or Intranet). However, once institutional administrators begin looking at the economic advantages of switching to computer-based delivery of programmes, they can underestimate the resources needed to effect such wholesale changes in teaching practices – and the kind of affective fallout that can result. In effect, many teachers have seen in this development a pernicious extension of the automation of economic sectors to the field of education, a public service intended to yield long-term rather than short-term benefits for society. Already this institutional scale of the change being mooted has begun to produce a literature addressing the sociological and political implications and effects of such dramatic changes in our social and educational behaviour and environment (e.g. Leigh Star, 1995).

This study begins by describing HKU English Centre's attempt to integrate IT throughout its curricula. We saw an opportunity in this institutional imperative to help realise some of our own pedagogical goals, e.g. increasing the reliance on Word Processing, which we had made a requirement for students' assignments long before most other departments. We also felt we should take the opportunity to show the university that we could contribute significantly to the undergraduates' education, at a time when our funding was being pared down to the wire, and scheduled for more cuts over the following 2 years.

Background: Previous Initiatives and Pilot Experience

For early background, see the report of the 1st survey (at http://ec.hku.hk/njbruce/OACESSurvey.htm). The emphasis from the beginning has been almost equally on both students and teachers, with interaction and feedback envisaged as being more important than delivery, with a sense that our teachers needed to be brought "on side" before we could concentrate on catering in any detail to our students' language learning needs. We de/ded to begin with areas which would be of help to our colleagues, rather than areas which might be seen as adding to their workload.

This original plan of action was overtaken by events in early 1998, when the University decided on its Laptop campus and IT-integration strategy. Some of us (the authors, David Nunan and Phil Benson,) put together a proposal to the University that emphasised our unique exposure to all 2,700 incoming students (the ones who would have the Laptops). We proposed that the "Integration of CMC into English Enhancement courses" project would focus on the following areas:

- Design and implementation of course and class web sites as a focal point for students' CMC work
- Design and implementation of CMC-based curriculum tasks and resources

We also recognized that integration of CMC into English Enhancement courses across the 1st-year program presupposed a degree of technical competence on the part of students and staff. Our development plans therefore needed to take account of an initial need for web-based support materials, ongoing consultation

[2] A report on their experience is viewable at http://www.uic.edu/depts/engl/projects/tictoc/descript.htm

for individual students and training and support for staff. The earlier-initiated OACES project continued to provide the infrastructural support for the English Centre's IT Integration [for an overview of this project's evolution and current focus, see URL: http://ec.hku.hk/njbruce/oacestable.pdf], but we were concerned that this latest development take account of the impact it would have on teachers' lives. Hence the concern to monitor teachers' reactions throughout this period.

The Pilot year: innovation and support

In September 1998 we embarked on the pilot year of IT integration, with two funded projects to help us in that endeavour: the IT Integration Project (ITIP) and the *WebRight* project. The IT Integration Project, funded by the University, began in early 1998, and provided technical and pedagogical staff to develop 2 web-based academic and a professional communication courses for 500 1st-year Arts faculty students. This project was mainly concerned with exploring new web authoring technology while putting together materials for up to 20 teachers, since a majority of teachers in the English Centre taught on one or both of these courses. The project also continued staff training in developing websites and authoring interactive tasks for the Web. The staff coordinating and training on this project excluded themselves from this survey.

The *WebRight* project, which we started in April 1999, was initiated in recognition that we lacked the resources to spread the efforts of the ITIP team to cover the other 24 courses that needed attention. For a range of reasons, we felt that a further bid for funding needed to be a modest one. Our solution to aiming for a low-cost, high-impact proposal was to budget for student research assistants. This also led us to realize the benefits for undergraduates of being trained to author websites. We proceeded to recruit 12 students to work as a team in collaborating with course coordinators and "IT reps" for the many courses, to develop websites for the 1999/2000 academic year. The 2nd questionnaire was circulated in the middle of this project, when many of the respondents were actively working with the student R.A.s to develop websites for their courses. We hope to be able to find further funding to continue each of these projects, as our regular funding barely covers the direct teaching we have to do.

Exploring Colleagues' Experience and Perceptions of IT Integration

In May 1998 and again in May 1999, we sent a Web-based survey questionnaire to all 34 teaching colleagues in the Centre, asking a range of questions about their experience of, and attitudes to, computers in education. The only difference between the questionnaires was that the final few questions of the follow-up survey necessarily asked for retrospective post-hoc feedback. Our first survey (May 1998) showed that for some teachers the proposed integration of IT presented an exciting prospect, while for others it loomed more threateningly. For a review of the findings of the 1st survey, and a copy of the questionnaire, see http://ec.hku.hk/njbruce/OACESSurvey.htm. In May 1999, we distributed a second follow-up survey, to find out how teachers had coped with the first full year of the demands of teaching in an IT-integrated curriculum (the year's teaching finished in April 1999).

Study and Findings from the 2nd survey (May 1999)

The same number of colleagues as last year, 18 (53%), responded. Up to half the respondents in the 2nd survey may not have completed the 1st survey, so comparisons need to take account of this variable. 6 respondents chose to submit anonymously, while 12 accepted the invitation to be contacted for follow-up interview. The 18 teachers had taught an average of 3.4 different courses over the year, from the full range of our pan-university activities: Engineering, Science, Social Sciences/Business/Economics, Arts, Law, Medics , Computer Science, Economics, Architecture and Dentistry.

We again elicited information about the length and nature of their experience using computers in EFL, and then their attitudes and perceptions regarding the benefits and problems. The data on experience held no surprises: as in 1998, colleagues had more experience with older forms of computer uses, like Word Processing and CALL authoring programmes, and over the trial year had inevitably gained experience with

more recent modes of delivery like the Web. The more interesting data – and what we shall focus on in this paper – came in the 2nd part of the survey, when we asked teachers about their attitudes to the role of IT in their curricula, on their confidence levels with various IT media, and about their views on the prospects for future developments.

In May 1998, confidence had been predictably higher with the more familiar, well-established forms of IT, with the exception of CALL programs which could range from technologically demanding programs to simple authoring packages. 5 of the 18 teachers interviewed expressed concern about their competence to handle Web authoring tasks, as this was being touted as the most high profile part of the IT Integration project. Interestingly, on a 1-5 scale, there was a fall in the mean among the 18 respondents in two significant areas. When asked about how confident they were that they would be able to handle classroom activities involving *authoring Web pages*, the mean fell from 2.8 prior to the pilot year to 2.4 at the end of it. *Using PowerPoint* also brought a drop in mean levels of evinced confidence, from 3.4 to 2.8. As noted, up to half the respondents in the 2nd survey may be different teachers, but the general trend indicates that anxiety levels were enhanced rather than assuaged during this pilot year. There are a number of possible explanations. One is that the wording of the question left it unclear whether the teachers were being asked if they were confident about teaching PowerPoint and Web authoring as IT skills, or just incorporating materials or student projects delivered via these media in their teaching. In the 1st survey there was some concern that IT-mediated teaching of English would not turn into teaching IT skills, and it is possible this remained a concern.

We then asked colleagues what benefits they perceived, personally and for the courses they coordinated or helped coordinate (all teachers are on at least one design team). The range of perceived benefits were predictable and similar to those nominated in the 1st, May 1998 survey, and were encouraging in their range and sophistication, given the relative novelty of IT in our practices. Perceived benefits for the courses were expressed largely in terms of curriculum-oriented benefits, but some addressed the possible impact on students. For a 2nd year, teachers nominated ease of access, range of choice, ease of communication, expansion of learning resources, individualization. In broader terms, many recognized the opportunity for professional development, keeping up to date, and projecting the right "progressive" image within the institution.

But it is at the level of perceived problems that the data become very interesting. In both surveys the teachers showed a sophisticated awareness of some of the fundamental problems with IT integration. This emerged on the issue of the threat of IT replacing teachers - via the administrator's imperative to save money via another form of automation – and on that of workload, as the e-mail response and online marking proposals have clear implications for teachers' time. After the pilot year skepticism remained high. A number of teachers used metaphors which suggested IT might be going through a transitory popularity phase. Teachers spoke of a "*fad*", "*keeping up with the Joneses*", a "*gimmick*", and a "*bandwagon*".

In May 1998, there had been a widespread expression of apprehension, amounting to outright fear and phobia in some cases. One teacher felt "uncertainty what to do when things go wrong & presenting myself as a "knower" & skilled user of the technology when I'm very much a learner; the capacity for demonstrating incompetence". One year later, this tended to be replaced with either a greater comfort with the type of support they had come to enjoy or a skepticism that IT integration was really a positive new direction for language pedagogy. A number of interesting points were raised, and the following table picks out a representative range of positive and negative comments from the 2nd May 1999 survey.

Positive	Negative
New skills: "Learning a new and transferable skill"	*Time*: "very time-consuming"; "time it takes to master IT programs and training"
Reliance: "I have learnt that I don't need to be a computer whiz myself – there are plenty of them around to help me"	*Apprehension*: Fear of computers taking over my teaching job"
Project: "The WebRighters' help is crucial – I don't think I could have worked on the course webs with the same level of	*Redundancy*: "If students know all the material is on the Web, they tend to feel they don't have to show up in class"
	Fashion: "a gimmick we hide behind, hoping it'll

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confidence if they had not been there to help with the technical side of the materials production"	solve our problems" *De-skilling*: "It potentially deskills some very fine classroom teachers ...not suited to this yet unproven bandwagon. *Infrastructure*: "Not enough ready-equipped classrooms; not many classrooms have sufficient facilities for us to conduct a lesson with IT"

A few of the respondents were clearly skeptical, questioning the assumed logic of an increasing integration of IT in our curricula. One respondent ascribed a "*Talebanistic zeal*" to the more engaged proponents of IT integration, and appealed to them to "*engage us poor apostates in a lively critical dialogue*", but then asked that this "*address issues such as how IT fits in with profoundly held beliefs*". Another respondent pointed to a "*Them/us divide between computer literates/illiterates*" and the danger of a belief in IT as a panacea. Mostly, however, the kinds of problems identified were those that might obstruct the optimal application of web-based technology.

Discussion

The aim of these 2 questionnaire surveys has been to form a profile of teachers' experiences, attitudes and values in relation to thisd IT integration initiative. Our intention is to use the resulting information to inform future IT integration policy in ways which take account of colleagues' states of mind and concerns.

As we have noted, the problems identified tended to be framed as constraints on the potential benefits – e.g. "*We need ready-equipped classrooms. It is horrendous having to carry/wheel around/set up IT equipment*". Only a few expressed misgivings about the potential of IT-mediated curricula. One respondent, aware of the return rate I was expecting, suggested the 50% non-respondents were likely to include those "*not that taken with the idea of integrating IT into the curricula*". Whether this is related to actual commitment shown, or general attitude, is hard to say, but this was the only case of a respondent expressing a negative construction of colleagues' attitudes to IT. Teachers were, however, concerned about how much would be expected of them as individual teachers with varying levels of computer literacy. There remained a degree of apprehension among our teachers, but one year later this took the form more of practical implications of exeessive or unrealistic expectations regarding the authoring of Web materials, rather than the general anticipatory fear of the unknown expressed a year ago. Some respondents saw IT as a function that could be left to their less technologically-challenged colleagues. Most, though, tended to welcome the opportunity to be trained in the new technology, but expressed concern that too much would be expected of them. Fearing that our development funding would run out before the websites had reached fruition, one respondent asked if it was "*possible to organize a second WebRight project*".

Conclusion and Recommendations

These surveys taken together offer encouraging evidence of a positive, if occasionally apprehensive, response to the prospect of having to integrate IT into our teaching practices. They have also revealed a sophisticated understanding of the issues and of the potential of IT in enhancing the learning environment we could provide for our students. Colleagues identified a number of problems with the pace of change, and with the lack of support for many aspects of that change, and these confirmed ideas we had already been considering. We can offer the following advice to organisations considering moving to computer-mediated practice:

From a technological viewpoint, advice to anyone attempting this scale of IT integration into their curricula would be to explore the technology before planning your budget, and to plan for the time and resources required to be able to adapt to changes in technology.

From a staff management and development viewpoint, we would make the following recommendations:

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1. Involve teachers in planning this kind of integration project;
2. Find out what they want/need/fear, etc.;
3. Make the CALL/CMC agenda *supportive* of existing practices;
4. Provide a steady program of incrementally-staged workshops;
5. Provide continuous "pastoral" support; ensuring you have budgeted for this support;
6. Wherever possible, pursue funding options for training and development; we found undergraduates perfectly able to handle Web authoring projects.

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